UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

SUBJECT: Recommendation for Determination of Imminent and Substantial Endangerment at the Oceana Salvage Site

Date: May 8, 2007

FROM: Laura Casillas, On Scene Coordinator
Western Response Branch
Office of Preparedness and Response

TO: James Burke, Division Director
Hazardous Site Cleanup Division

Because of the factors outlined below, I have determined that a threat to the public health or welfare or the environment exists at the Oceana Salvage Site ("Site"), and I recommend that a finding be made that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance at or from the Site.

1. **Site Name and Location**: Oceana Salvage Site, 1040 S. Oceana Blvd, Virginia Beach, VA 23454

2. **Owner:** Julia Malbon; **Former Operator:** Oceana Salvage, Inc.

3. **Population Information/Area Description**:
The area is a heavily traveled recreational and industrial zone. The site is primarily industrial and commercial, with a heavy client and worker traffic on a daily basis. The site is located directly adjacent to a large family campground that allows for extended lodging. Access to the site is unrestricted during business hours. During non-business hours, sporadic fencing and a single gate at the entrance to the access road control site access.

4. **Access:** _____ restricted __X__ unrestricted

5. **Coordination with Other Authorities:**
__X__ State Contact: Virginia Department of Environmental Quality ("VDEQ")
___ Local Contact
__X__ Other Contact Oceana Naval Air Station, Department of the Navy and U.S. Agency for Toxic Substances and Disease Registry (ATSDR)

6. **Site Characteristics:**

The Oceana Salvage site (the Site) is located at 1040 South Oceana Boulevard (Virginia State Route 615) in Virginia Beach City, Virginia, (as shown in January 2006 Trip Reporty Figure 1, Site Location Map, USGS 1989a, 1989b). The geographic coordinates for the approximate center of the site are 36.812250° north latitude and 75.978908° west longitude. The site is land locked to the north and west by Oceana Naval Air Station (NAS) property, to the east by the Holiday Trav-L-Park camp sites, and to the south by undeveloped land. The site is a non-tidal wetland area.

The Site continues to operate under a lease to a third party, as a salvage yard. Two piles of battery casings were created during a previous cleanup effort. Both piles contain elevated lead concentrations and were not disposed of properly. The piles are not contained, and pose a threat of release. Crushed batteries were visible near waste piles, and at various locations throughout the site.

A road which runs through NAS property provides the only access for all visitors to the salvage yard from Oceana Boulevard on the west. Crushed batteries were used as paving material for the access road and pose a threat of release. Fences or barriers that prevent contact to the hazardous substance are lacking on site.

Water supply wells are located [redacted] A total of [redacted] are located at two nearby campgrounds, the Virginia Beach KOA and the Holiday Trav-L Park. These wells serve fewer than 2,500 people. One public well is located [redacted] and also serves fewer than 2,500 people.

Aquifers in the area include the Columbia group and the Yorktown formation. The Columbia group lies less than two feet below the Navy property and is used for non potable water. The Yorktown formation lies approximately one hundred feet below the property. The general area has a slight east slope to the Atlantic coast line. The eastward draining slope includes Owl creek, Redwig Lake, and Lake Tecumseh

7. **Hazardous Substance(s) Present:**

The contaminant of concern at the Site is lead, which is a listed hazardous substance in accordance with 40 CFR 302.4. Sampling results show various instances of lead concentrations significantly above the industrial/commercial soil screening levels of 1,000 parts per million (ppm). Sampling of waste pile #1 showed concentrations of 19,500 ppm. Both waste piles are composed of similar crushed battery casings and debris. Concentrations of 13,100 ppm lead were detected near the southern area of the property along the end of the access road. The access road to the property has documented lead levels of 149,000 ppm and visible battery casings which have been used as paving material. (see January 2006 Trip Report Figure 3)

8. **Threat to Public Health or Welfare or the Environment: (References are to Section 300.415 of the National Oil and Hazardous Substances Contingency Plan ("NCP"))**

- 300.415(b)(2)(i) Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chain.

No actual exposure to lead battery waste has been documented by the OSC at this Site. Potential human exposure is circumstantially high and the possibility that actual human exposure has occurred is likewise very high. The site is a commercial/industrial property with a single access road. The road is surfaced with battery casings. Concentrations of up to 149,000 ppm lead have been detected within this access road. Additionally, two lead waste piles have been improperly disposed of on the property. These piles have concentrations up to 19,500 ppm lead. Currently no controls are in place to mitigate these sources of lead contamination.

Lead is poisonous to humans by ingestion and inhalation. It is a suspected carcinogen in the lungs and kidneys. Human systemic effects by ingestion and inhalation include loss of appetite, anemia, malaise, insomnia, headache, irritability, muscle and joint pains, tremors, hallucinations, distorted perceptions, muscle weakness, gastritis, and liver changes. Lead also affects the human nervous system, the blood system and the kidneys. Chronic exposure can lead to irreversible vascular sclerosis, tubular cell atrophy, interstitial fibrosis, and glomerular sclerosis. Significant exposure can cause sterility, miscarriage, and neonatal mortality and morbidity.

– 300.415(b)(2)(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems.

The Site is located on an inland wetland containing an aquifer as shallow as two feet. Water surges coupled with the acidic nature of the batteries make it likely for lead to leach. Sensitive ecosystems are likely to be affected by the lead contamination on site.

However, contamination of drinking water from on-site lead is unlikely given that the Yorktown aquifer formation, which is often used to provide potable water, lies more then 100 feet below ground surface, and is separated by several layers including clays. EPA sampled one potable water well at a campground property adjacent the salvage yard. Less than 1 microgram per liter of lead was detected.

– 300.415(b)(2)(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

The Site is located in an inland wetland. The water table in this area rests at approximately two feet of depth. If the battery wastes are not removed precipitation and natural water table fluctuations can in this area can cause the migration of the lead contamination to areas beyond the current extent of contamination, increasing the potential for exposure of and uptake by

sensitive ecosystems.

Winds may transport lead dusts through the area where on-site workers and clients would be exposed Additionally, fugitive lead dusts could blow onto the adjacent campground where vacationers, including children, may be exposed.

– **300.415(b)(2)(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.**

Winds may transport lead dusts through the area where on-site workers and clients would be exposed. Additionally, fugitive lead dusts could blow onto the adjacent campground where vacationers, including children, may be exposed. If the battery wastes are not removed precipitation and natural water table fluctuations can in this area can cause the migration of the lead contamination to areas beyond the current extent of contamination, increasing the potential for exposure.

– **300.415(b)(2)(vii) The availability of other appropriate Federal or State response mechanisms to respond to the release.**

VADEQ is focusing on other priorities with its available funding and at the present time is not able to take on the actions the OSC proposes.

9. **List of Supporting Documents:**

Agency for Toxic Substances and Disease Registry Record of Activity, dated January 9th, 2006.
January 2006 Trip Report Figure 1, Site Location Map, USGS 1989a, 1989b
January 2006 Trip Report Figure 3, Sampling Location Map

Action by the Approving Official:

I have reviewed the above-stated facts and based upon those facts and the information compiled in the documents described above, I hereby determine that the release or threatened release of hazardous substances at and/or from the Site presents or may present an imminent and substantial endangerment to the public health or welfare or to the environment.

James Burke

James Burke, Director
Hazardous Site Cleanup Division

5/8/07
Date

Concurrence Chain
Imminent and Substantial Endangerment Determination

1. OSC
2. Response Branch Chief
3. ORC Attorney
4. Associate Director, Office of Preparedness and Response
5. Division Director

ATSDR Record of Activity

UID #: rlw0 Date: 01 / 09 / 2007 Time: 10:00 am x pm

Site Name: Oceana Salvage City: Virginia Cnty: Unknown State: VA

CERCLIS #: VAN000306180 Cost Recovery #: 3AEH Region: III

Site Status (1) _ NPL _ Non-NPL _ RCRA _ Non-Site specific _ Federal
(2) _ Emergency Response _ Remedial _ Other

Activities

_ Incoming Call _ Public Meeting* _ Health Consult* _ Site Visit*
_ Outgoing Call _ Other Meeting _ Health Referral _ Info Provided
_ Conference Call _ Data Review X Written Response _ Training
_ Incoming Mail _ Other

Requestor: (1) Laura Casillas
Phone: 215-814-3253 Address: 1650 Arch St.
City: Philadelphia State: PA Zip Code: 19103

Contacts and Affiliation

(31) Lora Werner ( )
( ) ( )

1-EPA	2-USCG	3-OTHER FED	4-STATE ENV	5-STATE HLT
6-COUNTY HLTH	7-CITY HLTH	8-HOSPITAL	9-LAW ENFORCE	10-FIRE DEPT
11-POISON CTR	12-PRIV CITZ	13-OTHER	14-UNKNOWN	15-DOD
16-DOE	17-NOAA	18-OTHR STATE	19-OTHR COUNTY	20-OTHR CITY
21-INTL	22-CITZ GROUP	23-ELECT. OFF	24-PRIV. CO	25-NEWS MEDIA
26-ARMY	27-NAVY	28-AIR FORCE	29-DEF LOG AGCY	30-NRC
31-ATSDR				

Program Areas

_ Health Assessment _ Health Studies _ Tox Info-profile _ Worker Hlth
_ Petition Assessment _ Health Surveillnc _ Tox Info-Nonprofil _ Admin
_ Emergency Response _ Disease Regstry _ Subst-Spec Resch _ Other
_ Health Consultation _ Exposr Regstry _ Health Education

BACKGROUND AND STATEMENT OF ISSUES: US Environmental Protection Agency (EPA) Region III requested the Agency for Toxic Substances and Disease Registry ATSDR) review the results of lead contaminated surface soil samples obtained from an access road that goes to the Oceana Salvage Site, and comment on the health implications associated with human exposure.

The Oceana Salvage Site is located in Virginia Beach, Virginia, and has operated at its current location for about 45 years. The site is bordered to the north and west by Oceana Naval Air Station (NAS), to the east by Holiday Trav-L-Park, and to the south by undeveloped land. A fence is installed along the property

boundary between NAS and the Oceana Salvage Site, and another fence is located between the property boundary and the Holiday Trav-L-Park. Access to the site is via an unpaved gravel road which connects the salvage yard to Oceana Boulevard [1]. The access road to the site is composed of gravel and dirt and visible dust is often seen on and around the road. The road is used daily by customers and on-site workers, as it is the only access to the site.

On January 18, 2005, soil sampling was conducted along the access road by CH2M HILL and described as a Direct-Push Soil Survey. The samples were collected at 25 different locations. All of the soil samples revealed the presence of battery casings except at sampling location SS16. Sixteen of the twenty five samples were screened for lead before selecting four to be sent to a laboratory for confirmatory analysis. Two of the soil samples were selected for laboratory lead analysis based on field screening results of greater than 400 parts per million (ppm) [1]. Battery casings were detected from 0.1 to 2.5 feet below ground surface. All visible battery fragments were removed from the samples before they were transferred to the laboratory [1]. The soil samples that were obtained below the waste layer were submitted to the laboratory to determine if lead had leached into the soils below the battery fragments. The analytical results of the samples collected from the access road revealed lead at levels greater than 400 ppm. Sample number SS02 was collected along the access road and revealed lead at 34,000 ppm. Sample number SS19 was collected a few hundred feet west of the Oceana Salvage Site and contained lead at 149,000 ppm. Also, battery casings were detected below surface on the access road [1].

DISCUSSION

The access road that goes to Oceana Salvage Site poses a potential health hazard to those persons who frequently traverse the road in cars with open windows. Human exposure to lead at this site may occur via inhalation of windborne dust when driving with open windows to the salvage yard, or inadvertent ingestion of on-site battery casings, or lead contaminated soils.

Based on the available groundwater monitoring information from near the site, US EPA currently does not believe vertical migration of site-related contaminants is affecting the underlying aquifer used for nearby drinking water wells. The closest wells being used for drinking water purposes near the site appear to be located at the Holiday Trav-L-Park.

Bioavailability of lead has become an issue in quantifying exposure of sensitive populations, and where necessary establishing clean-up levels for contaminated soil. Long-term exposure to low levels of lead has been shown to be associated with behavioral abnormalities, learning deficits, and impaired cognitive functions, and has also been implicated in the pathogenesis of hypertension both in humans and animals model systems [2]. It is well known that lead exposures cause adverse health effects on heme biosynthesis. This effect occurs as a result of lead inhibition of certain enzyme activity such as aminolevulinic acid dehydratase (ALAD) [3]. Reductions in ALAD production in adults have been demonstrated at an oral dose of 0.02 milligrams/kilogram/day (mg/kg/d) for 3 days and at air levels as low as 3.2 micrograms/cubic meter($\mu g/m^3$) for 3 or 4 months.

Exposure to lead may cause serious adverse health effects, particularly in young children. Young children and fetuses are especially sensitive to the toxic effects of lead exposures. Factors influencing this susceptibility include (1) immaturity of the blood brain barrier which allows entrance of contaminants into the developing central nervous system; (2) hand-to-mouth activity and pica (ingestion of at least one gram of soil) behavior which leads to consumption of contaminated media; (3) nutritional status of the child; (4) low body weight; (5) passive diffusion of contaminants across the placenta to the developing fetus. Because of these factors, children are more at risk of developing adverse health effects than adolescents and adults from lead exposure.

Blood lead levels at 10 micrograms/deciliter (µg/dl) or greater have been linked to adverse developmental effects in fetuses, hearing impairment, stunting of growth, and reductions in intelligence quotients in children [4]. Blood lead levels are increased on average about 5 µg/dl for every 1,000 ppm of lead in soil or dust, and may increase 3 to 5 times higher than the mean response depending on play habits and mouthing behavior [5,6].

A lead study conducted to investigate the seasonal changes in blood lead levels in children indicates that some of the seasonal variation in blood lead levels in children is probably due to increased exposure to lead in dust and soil. Moreover, the study showed that the outdoor activity patterns indicate that children are likely to contact high lead levels from street dust, or soil during longer outdoor play periods in the summer [4].

US EPA use 400 ppm and 1,000 ppm as screening tools for lead for residential and industrial soils, respectively. No minimal risk level has been developed for lead, because the threshold for its most sensitive effects (i.e., neurotoxicity) has not yet been defined. Furthermore, US EPA has not developed a Reference Dose for lead [4].

At the Oceana Salvage Site, lead was detected at 18 ppm, 127 ppm, 31,400 ppm, and at 149,000 ppm in surface soil samples down to 2 to 3 feet below the surface. Specifically, along the access road at the Oceana Salvage Site lead was detected at a maximum level of 31,400 ppm. An absorbed dose of lead at 0.05 mg/kg/d for 5 days per week for 200 days has been shown to cause adverse neurological effects in monkeys. In characterizing the access road at this site, ATSDR assumed that 2days/week for 3 months a child weighing 15 kg ingests 200 mg of soil/day that contains an average level of lead at 15,000 ppm. With these assumptions, the estimated exposure dose of lead would be approximately 0.05 mg/kg/d.

CONCLUSIONS

Lead levels in surface soil along the access road that goes to the Oceana Salvage Site may be highly variable. The results of these surface soil samples revealed lead at levels that exceed US EPA's lead screening level for industrial sites of 1,000 ppm. Furthermore, inhalation and inadvertent oral exposures of lead contaminated soils and dusts may increase blood lead levels in people who regularly traverse the access road and go on-site. Therefore, the battery casings containing lead along the access road which goes to the Oceana Salvage Site poses a potential health hazard to children and adults who regularly

traverse the road with open windows in their cars.

RECOMMENDATIONS

1. Prevent human exposures to site-related lead contaminated soils, dusts, and battery casings along the access road, and on-site.
2. Conduct surface soil sampling at the Holiday Trav-L-Park to assess the horizontal extent of lead contaminated soil.
3. Resample nearby drinking water wells to confirm that lead from the site is not adversely affecting these domestic water supplies.

Signature: _____ Date: 1-09-2007

cc:

REFERENCES

1. Technical Memorandum Summary of Direct-Push Soil Survey, Oceana Salvage Access Road, Virginia Beach, VA, prepared by Laura Cook/CH2M HILL, February 1,2005.

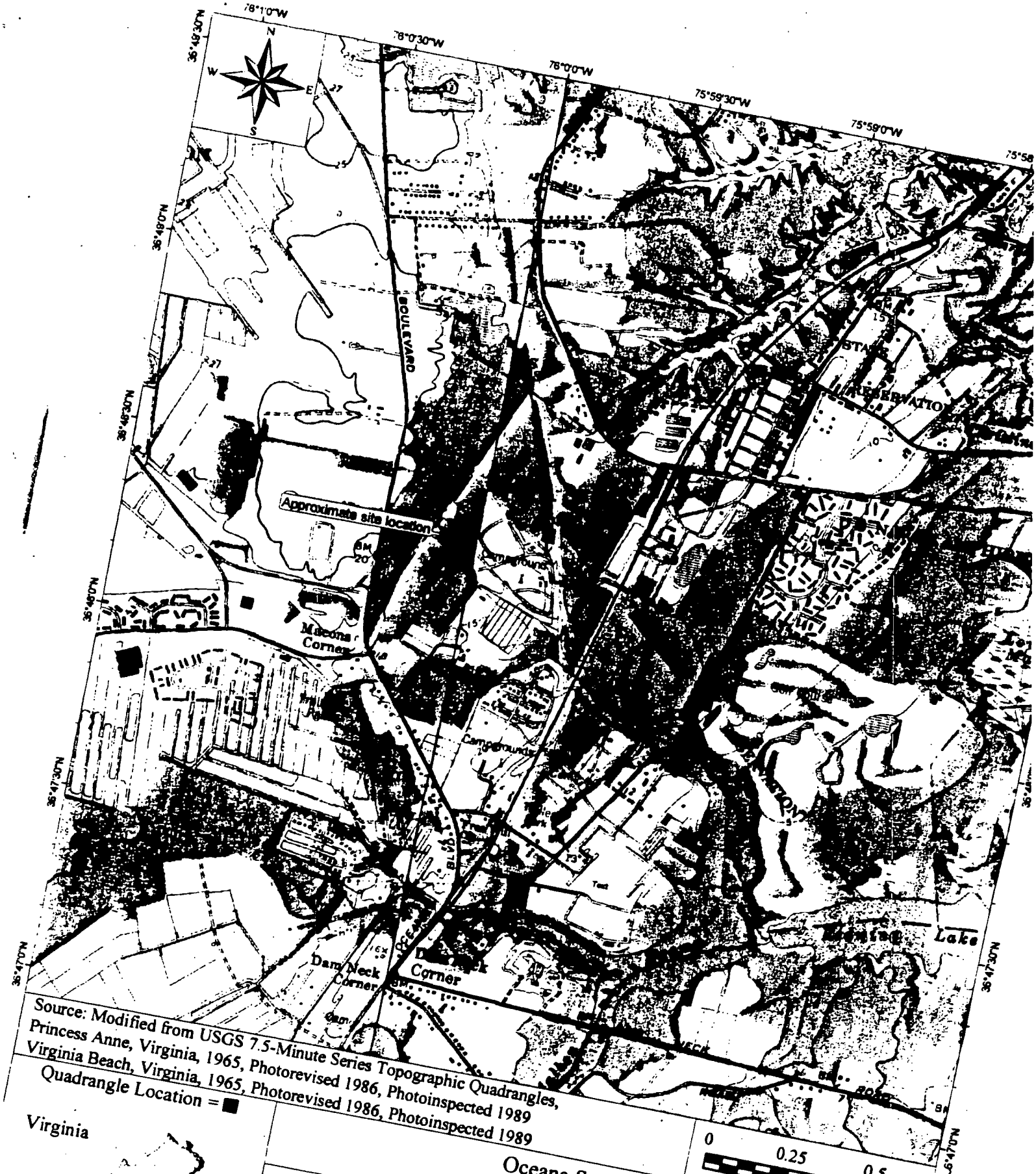
2. Region-Specific Alterations in Dopamine and Serotonin Metabolism in Brains of Rats Exposed to Low Levels of Lead, Subbarao V. Kala and Arun L. Jadhav, Neurotoxicology 16 (2): 297-308, 1995.

3. Toxicological Profile for Lead, ATSDR, 1999.

4. Abstract: Seasonal Influences on Childhood Lead Exposure, Lih-Ming, George G Rhoads, Paul J. Lioy, Environmental Health Perspectives Volume 108, Number 2, February 2000.

5. Standards for soil lead limitations in the United States, Chaney, R.L. and Mielke, H.W., Trace Substances in Environmental Health 20:355-377, 1986.

6. Establishing a health based standard for lead in residential soils, Reagan, P.L. and Silbergeld, E.K., Trace Substances in Environmental Health 23:119-238, 1990.



Source: Modified from USGS 7.5-Minute Series Topographic Quadrangles, Princess Anne, Virginia, 1965, Photorevised 1986, Photoinspected 1989 Virginia Beach, Virginia, 1965, Photorevised 1986, Photoinspected 1989

Quadrangle Location = ■

0 0.25 0.5 Miles

Oceana Salvage Site
Virginia Beach, Virginia

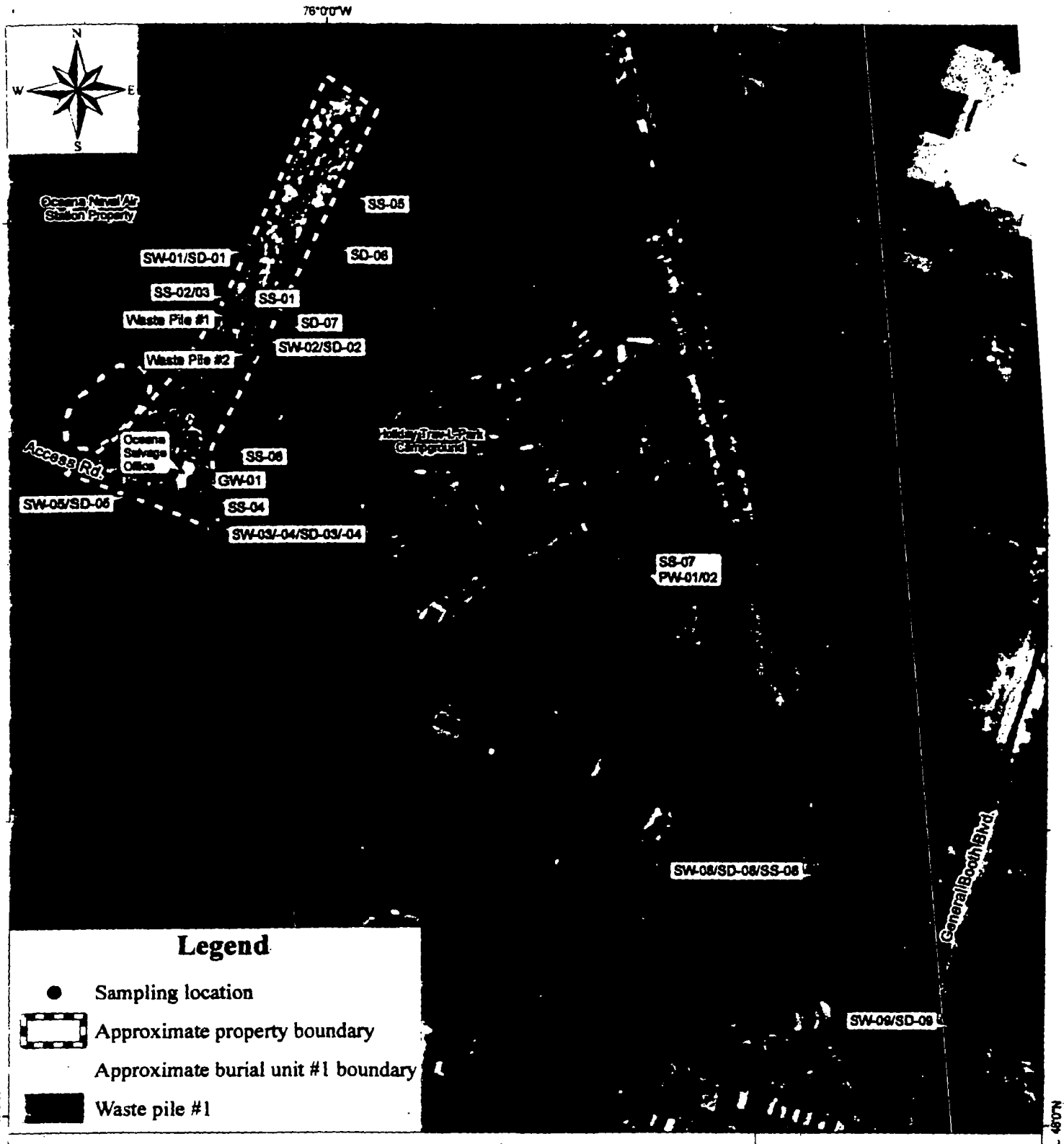
Figure 1
Site Location Map

TDD No. E03-001-06-01-001
EPA Contract No. EP-S3-05-02

Map created on January 26, 2006
by [redacted], Tetra Tech

ıft Trip Report

AR300025

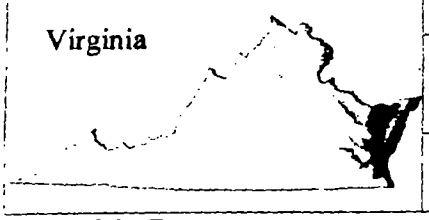


Source: Modified from USGS Digital Orthophoto (DOQQ) mosaic for Princess Anne Quadrangle, Virginia. Virginia Economic Development Partnership, 1994

0 250 500 Feet

Quadrangle Location = ■

Virginia



Oceana Salvage Site
Virginia Beach, Virginia

Figure 3
Sampling Location Map

TDD No. E03-001-06-01-001
EPA Contract No. EP-S3-05-02

Map created on April 11, 2006
[redacted] Tetra Tech START

TETRA TECH EM INC